CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Supplementary Examinations May-2023
Course Name: COMPUTER NETWORKS
(Common for CSE, IT & CSM)

Date: 09.05.2023 AN	Time: 3 hours	Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.   10x2=20M

1.	State network hardware.	2 M
2.	What is Internet?	2 M
3.	Explain simplex data link protocol.	2 M
4.	Define sliding window protocol.	2 M
5.	Compare virtual circuit and datagram networks.	2 M
6.	Give the advantages of routing algorithms.	2 M
7.	List the importance of port address in transport layer.	2 M
8.	Draw the header format of UDP.	2 M
9.	Mention the advantages of User Agent in E-mail.	2 M
10.	What is JPEG standard?	2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A).	Explain OSI reference model.	10M
	OR	
11. B).	Discuss wireless transmission medium.	10M
12. A).	Explain error detection and correction of data link layer.	10M
	OR	
12. B).	Explain ALOHA and Carriers Sense Multiple Access (CSMA) protocols.	10M
13. A).	Explain shortest path algorithm with suitable sketches.	10M
	OR	
13. B).	Describe congestion control algorithms.	10M
14. A).	Discuss the services of transport layer and sketch the TCP header format.	10M
	OR	
14. B).	Explain TCP connection management in transport layer.	10M
15. A).	Explain the concept of Domain Name System (DNS) in application layer.	10M
	OR	
15. B).	Describe the concept of streaming audio and video.	10M

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CMR CMR COLLEGE OF ENGINEERING & TECHNOLOGY
EXPLORE TO INVENT

(UGC AUTONOMOUS)

B.Tech V Semester Supplementary Examinations May-2023

Course Name: AUTOMATA & COMPILER DESIGN

(Common for IT & CSC)

Date: 11.05.2023 AN	Time: 3 hours	Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A

Answer all TEN questions (Compulsory)

Each question carries TWO marks.   10x2=20M

1.	Draw the finite machine model.	2 M
2.	List out any three properties of regular expressions.	2 M
3.	Define handle pruning.	2 M
4.	Difference in between inherited attribute and synthesized attribute.	2 M
5.	Define type expression.	2 M
6.	What is overloading functions?	2 M
7.	Classify the storage allocation strategies.	2 M
8.	What is use of flow graph?	2 M
9.	What is absolute code?	2 M
10.	Define dead code elimination with an appropriate example.	2 M

PART-B

Answer the following. Each question carries TEN Marks.   5x10=50M

11.A). i) Design Finite Automata for the regular Expression $0(10+01)*11$ 5M

ii) Construct DFA's Equivalent to the NFA's ($\{p,q,r,s\},\{0,1\},\delta, p,\{s\}$) δ is given in the following table.   5M

Input State	0	1
p	q,s	q
q	r	q,r
r	s	p
s	-	p

OR

11. B). What is an ambiguous grammar? Show that the grammar   10M

$S \rightarrow iEtSS_1/ a$

$S_1 \rightarrow eS / \in$

$E \rightarrow b$ is ambiguous or not.

Design a predictive parsing table and test whether the above grammar LL(1) or not .

(P.T.O..)

12. A). Develop LALR parsing table for the following grammar   10M
      S → AA

      A → aA

      A → b

OR

12. B). Parse the input string int id,id; using shift-reduce parser for the following grammar   10M
      S → TL;

      T →int | float

      L →L,id | id

13. A). Discuss in detail about Chomsky hierarchy of languages.   10M

OR

13. B). Describe about type checking and type conversions.   10M

14. A). Demonstrate the Access to Nonlocal Data on the Stack.   10M

OR

14. B). Illustrate the peephole optimization techniques.   10M

15. A). Explain simple code generation algorithms.   10M

OR

15. B). Summarize the machine independent code optimization.   10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Supplementary Examinations May-2023
Course Name: INFORMATION SECURITY
(Common for CSE & IT)

Date: 13.05.2023 AN	Time: 3 hours	Max.Marks: 70

(Note: Assume suitable data if necessary)
PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.   10x2=20M

1.	Write about strength of DES algorithm.	2 M
2.	What are the advantages of Key Distribution?	2 M
3.	What is Key Management?	2 M
4.	Write the need of Hash Function.	2 M
5.	What are the various PGP services?	2 M
6.	Describe about Digital signature.	2 M
7.	Explain IP Security.	2 M
8.	What is SSL handshake protocol?	2 M
9.	What is Intrusion detection?	2 M
10.	Write the Difference between virus and worm.	2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A).	Illustrate in detail about various types of Security attacks with neat diagrams.	10M
	OR	
11. B).	Explain about Traffic Confidentiality.	10M
12. A).	Briefly explain in detail about public key cryptography principles.	10M
	OR	
12. B).	Write in detail about Message Authentication and Hash function.	10M
13. A).	Discuss the various Digital signatures in security? Explain in detail about each.	10M
	OR	
13. B).	What is Email Security? Write in detail about S/MIME.	10M
14. A).	Describe in detail about Authentication Header.	10M
	OR	
14. B).	What are the web security requirements and write in detail about Transport Layer Security (TLS).	10M
15. A).	What is a Firewall? Explain its design principles and types with example.	10M
	OR	
15. B).	What is Intruder? Discuss Intrusion detection system with neat diagram.	10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Supplementary Examinations May-2023
Course Name: SOFTWARE TESTING METHODOLOGIES
(Common for CSE & IT)

Date: 13.05.2023 AN	Time: 3 hours	Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.　　　　　　　　　　**10x2=20M**

1.	Distinguish between Error and Bug.	2 M
2.	List the differences between Flow Graph and Flow Chart.	2 M
3.	Define Data flow testing.	2 M
4.	Define Slicing.	2 M
5.	List out the properties of nice domain.	2 M
6.	Define Path and Path Product.	2 M
7.	Define State table.	2 M
8.	Outline the Principles of judging a graph as a good or bad state graph.	2 M
9.	Define out-degree and in-degree of a node.	2 M
10.	Define the term equivalence relation.	2 M

PART-B
Answer the following. Each question carries TEN Marks.　　　　**5x10=50M**

11.A).	Explain path selection and path testing criteria. Identify how they affect testing.	10M
	OR	
11. B).	Illustrate various types of Bugs possible in executing a program and discuss their remedies.	10M
12. A).	Identify and discuss the complexity of transaction flow representation.	10M
	OR	
12. B).	Compare and contrast static versus dynamic anomaly detection.	10M
13. A).	Summarize the importance of regular expression in software testing.	10M
	OR	
13. B).	Identify and explain various restrictions at domain testing processes.	10M
14. A).	Outline the principles of state testing? Discuss advantages and disadvantages.	10M
	OR	
14. B).	Identify how decision tables will be helpful in logic based testing. Illustrate with an example.	10M
15. A).	Analyze the features of Jmeter Testing environment.	10M
	OR	
15. B).	Demonstrate matrix of graphs representation in details.	10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Supplementary Examinations May-2023
Course Name: OPERATING SYSTEMS
(Common for CSE & IT)

Date: 16.05.2023 AN	Time: 3 hours	Max.Marks: 70

(Note: Assume suitable data if necessary)

PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.   10x2=20M

1.	List the objectives of operating system.	2 M
2.	What is real time operating system?	2 M
3.	Draw the process state transition diagram and define the states.	2 M
4.	Identify the benefits of multithreaded programming.	2 M
5.	Define Semaphore. Give its primitive operations	2 M
6.	How does deadlock differ from starvation?	2 M
7.	What is a file directory?	2 M
8.	How thrashing is detected by operating system? Give any two ways to resolve it.	2 M
9.	List any four system calls used for file manipulation with its functions.	2 M
10.	Identify the purpose of access control list regarding file protection in operating system.	2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A). Discuss about operating system structures.   10M

OR

11. B). Classify the types of system calls and explain any three types of it with its functions.   10M

12. A). Show how cooperating processes can communicate with each other via a message passing facility with an example.   10M

OR

12. B). Consider the following set of processes, with the length of the   CPU-burst time given in milli seconds: 10M

Process	Burst Time	Arrival Time
P1	8	0.0
P2	4	0.4
P3	1	1.0

i) Draw the Gantt's chart illustrating the execution of these processes using FCFS, preemptive SJF and non-preemptive SJF scheduling techniques.

ii) Find the turnaround time and waiting time of each process using the above techniques.

(P.T.O..)

13. A). Examine how does Peterson's solution satisfy the three requirements of critical section problem with its pseudo code.   10M

OR

13. B). Consider the following snapshot of a system   10M

	Allocation				Max				Available			
	A	B	C	D	A	B	C	D	A	B	C	D
P0	0	0	1	2	0	0	1	2	1	5	2	0
P1	1	0	0	0	1	7	5	0				
P2	1	3	5	4	2	3	5	6				
P3	0	6	3	2	0	6	5	2				
P4	0	0	1	4	0	6	5	6				

With reference to Banker's algorithm
  i)   What is the content of the matrix need?
  ii) Is the system in a safe state?
If a request from process P1 arrives for (0,4,2,0), can the request be granted immediately?

14. A). Given five memory partitions of 100 KB, 500 KB, 200 KB, 300 KB, and 600 KB (in order).   10M

i) How would each of the first-fit, best-fit, and worst-fit algorithms place processes of 212 KB, 417 KB, 112 KB, and 426 KB (in order)?
ii) Which algorithm makes the most efficient use of memory?

OR

14. B). Show the situation under which the most frequently used page replacement algorithm generates fewer page faults than the least frequently used page replacement algorithm with an example.   10M

15. A). Explain about file allocation methods and give some examples.   10M

OR

15. B). Explain the different techniques used for free space management regarding effective disk space utilization.   10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Supplementary Examinations May-2023
Course Name: ARTIFICIAL INTELLEGENCE
(CSE & IT)

Date: 18.05.2023 AN	Time: 3 hours	Max.Marks: 70

(Note: Assume suitable data if necessary)
PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.   10x2=20M

1. Define artificial intelligence system.   2 M
2. Define PEAS in agent system.   2 M
3. Define pruning in a game tree.   2 M
4. What is utility function?   2 M
5. Define propositional logic.   2 M
6. What is first order logic?   2 M
7. Define classical planning problems.   2 M
8. What is a closed world assumptions?   2 M
9. Define a random variables.   2 M
10. What is a decision tree method?   2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A). Apply depth first search and Greedy best first search to find the route from Arad to Bucharest in the figure shown below.   10M
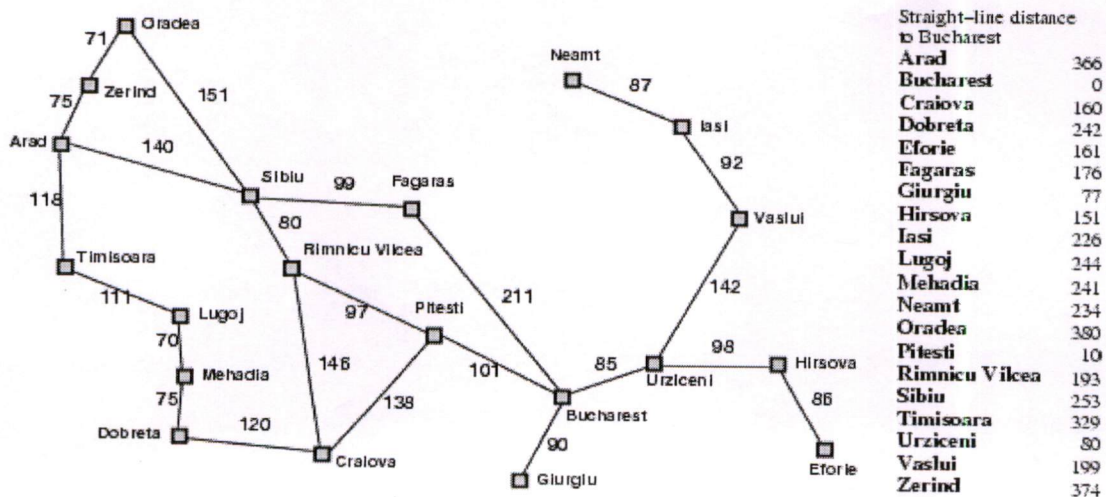
OR

11. B). Apply Breadth first search and A* search to find the route from Arad to Bucharest in the above figure.   10M

(P.T.O..)

12. A). Explain graph coloring problem with example.   10M

OR

12. B). Explain Min Max Algorithm with example for 2 player games.   10M

13. A). Explain the models for first order logic and its syntax using Backus naur form.   10M

OR

13. B). Explain the unification algorithm with example.   10M

14. A). Explain the language of planning problems.   10M

OR

14. B). Explain the job shop scheduling problem for assembling two cars.   10M

15. A). Discuss the semantics of bayesian networks with example.   10M

OR

15. B). Explain random variables, prior probability and conditional probability with example.   10M

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CMR COLLEGE OF ENGINEERING & TECHNOLOGY
(UGC AUTONOMOUS)
B.Tech V Semester Supplementary Examinations May-2023

Course Name: KNOWLEDGE MANAGEMENT
(Common for ECE, CSE, IT & CSC)

Date: 22.05.2023 AN   Time: 3 hours   Max.Marks: 70

(Note: Assume suitable data if necessary)
PART-A
Answer all TEN questions (Compulsory)
Each question carries TWO marks.   10x2=20M

1.	Define Data Information.	2 M
2.	What do you mean by Organizational Knowledge?	2 M
3.	What do you mean by Knowledge Management System?	2 M
4.	What is BPR?	2 M
5.	List out the challenges faced by Manufacturing Sector.	2 M
6.	List out the challenges faced by service sector industry.	2 M
7.	What do you mean by Relationship Management?	2 M
8.	What is CRM?	2 M
9.	How Net Banking in India works? Explain.	2 M
10.	Define Information Architecture.	2 M

PART-B
Answer the following. Each question carries TEN Marks.   5x10=50M

11.A).	What are the characteristics, nature and Types of Knowledge Management? Explain.	10M
	OR	
11. B).	Explain the key components of Organizational Knowledge.	10M
12. A).	Explain the importance of Information Technology in Knowledge Management Systems.	10M
	OR	
12. B).	Differentiate between Data Warehousing and Data Mining.	10M
13. A).	Explain the role of Knowledge Management in Service industry.	10M
	OR	
13. B).	What are the challenges and future of Knowledge Management? Explain.	10M
14. A).	Explain how Business Ethics is interrelated with Knowledge Management.	10M
	OR	
14. B).	Explain the Imperatives of new age in the Knowledge Process.	10M
15. A).	How Business Intelligence is interlinked with Internet Platforms? Explain.	10M
	OR	
15. B).	Explain the role of Knowledge Management in Organizational Restructuring.	10M

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